

REMARKS

This paper is submitted in response to the Office Action mailed July 7, 2009. Claims 18 and 20 are currently pending. Claims 9–19 were previously withdrawn. Claims 21–31 are hereby withdrawn as directed to a non-elected invention. Claim 1 is amended to correct minor errors and clarify the scope of the claim. Support for the amendment can be found throughout the specification, and specifically at page 27 (Table 1). No new matter is introduced by this amendment.

Restriction Requirement

The Examiner issued a Restriction Requirement under the unity of invention standard, requiring restriction to one of the following inventions:

- I. Claims 1–8 and 20, drawn to a steel composition
- II. Claims 21–31, drawn to an uncoated, electro-galvanised or hot dip galvanised TRIP steel product

Based on Applicants' previous election of the invention of Group I (claims 1–8 and 20) for examination, the additional invention of Group II (claims 21–31) were withdrawn from further consideration by the Examiner, as directed to a non-elected invention. Applicants agree to the withdrawal of claims 21–31, and reserve the right to pursue these claims in one or more divisional applications.

Rejection under 35 U.S.C. § 112

Claim 1 was rejected under 35 U.S.C. § 112, second paragraph as indefinite. Without acquiescing in the Examiner's characterization of the claim, and solely to expedite allowance, Applicants note that claim 1 has been amended to indicate the percentage of various phases in the microstructure in terms of "vol%". In view of this amendment, withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 1–8 and 20 were rejected under 35 U.S.C. § 103(a) as obvious over Yokoi et al. (U.S. Patent No. 6,589,369, hereinafter US '369). Applicants respectfully traverse the rejection.

Yokoi et al. describe a compound structure steel sheet made of steel containing 0.01 to 0.3% C, 0.01 to 2% Si, 0.05 to 3% Mn, 0.1% or less P, 0.01% or less S, and 0.005 to 1% Al. The microstructure is a compound structure containing ferrite as the main phase, and martensite or retained austenite as the second phase (*see, e.g.*, Yokoi et al., Abstract). Yokoi et al. note that the upper limit for Al in the disclosed steel composition is 1%, with 0.5% or less being preferred. According to the reference, Al increases the formation of non-metallic inclusions and deteriorates elongation when added in larger quantities (*see id.*, at col. 10, ll. 20–25).

Claim 1, as herein amended, recites a cold rolled steel composition that includes C (between 1300 ppm and 2600 ppm), Mn (between 10000 ppm and 22000 ppm), Al (between 10000 ppm and 15000 ppm), Si (between 2000 ppm and 6000 ppm), P (between 400 and 1000 ppm), S (at a maximum of 120 ppm), N (at a maximum of 200 ppm), Ti (at a maximum of 1000 ppm), Nb (at a maximum of 1000 ppm), V (at a maximum of 1000 ppm), and B (at a maximum of 10 ppm). The remainder of the composition is iron and incidental impurities, and the cold rolled steel composition has a microstructure that is 30–75 vol% ferrite; 10–40 vol% bainite, 0–20 vol% retained austenite and 1–10 vol% martensite.

To make a *prima facie* case of obviousness, the teachings of the prior art should have suggested the claimed subject matter to the person of ordinary skill in the art, and all the claim limitations must be taught or suggested in the references cited by the Examiner. *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000). As articulated by the Supreme Court in a recent case, a combination is obvious if it is no more than the predictable use of known elements according to their established functions; and there was a reason to combine the known elements. *KSR Intl Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007). To make a *prima facie* case of obviousness, "it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed." *Id.* The initial burden to make a *prima facie* case

of obviousness is on the Examiner. *In re Bell*, 991 F.2d 781, 783 (Fed. Cir. 1993). Applicants submit that the Examiner does not make a *prima facie* case of obviousness, because all the limitations of the present claims are not taught by the reference cited in the Office Action.

Applicants submit that a cold rolled steel composition including all the components recited in claim 1 and the microstructure recited in claim 1 is not taught or suggested by Yokoi et al. Specifically, Applicants note that Yokoi et al. does not describe a steel composition that includes 1% to 1.5% by weight of Al, as recited in claim 1. Indeed, Yokoi et al. teaches away from Al content higher than 1% (*see* Yokoi et al., at col. 10, 11. 20–25).

In contrast, the present Application specifies that higher concentrations of Al (i.e. between 10000 ppm and 15000 ppm) are necessary to ensure the robustness of TRIP steel products made from the composition of the invention (*see* Application, at p. 22, ll. 5–21). Lower concentrations of Al retard bainite transformation kinetics in the microstructure and result in mechanical properties becoming dependent on line processing conditions. Lower concentrations of Al also increase the risk of loss of mechanical properties because of austenite decomposition by precipitation of carbon. If the retained austenite becomes less stable, it transforms readily into martensite during transformation, and the resulting steel product has reduced formability. Therefore, according to the present invention, higher concentrations of Al (between 10000 ppm and 15000 ppm, as recited in claim 1, and as shown in Table 1 (p. 27)) are necessary to produce the cold rolled steel composition of the invention.

Yokoi et al., however, suggest that higher contents of Al are NOT recommended, and disclose 1% as a maximum for the concentration of Al in the composition. A person of skill in the art would not be motivated to modify the lower concentration of Al taught in Yokoi et al. to be between 10000 and 15000 ppm as in the present claims, given that Yokoi et al. expressly states that higher concentrations of Al are not preferred. Claim 1, as amended, is therefore, not *prima facie* obvious over the teaching of Yokoi et al.

Claims 2–8 and 20 depend from claim 1 and incorporate all the limitations thereof. Therefore, these claims are also not *prima facie* obvious over the teaching of Yokoi et al.

U.S. Patent Application Serial No. 10/539,758

Amendment dated December 7, 2009

Reply to Office Action dated July 7, 2009

In view of the above remarks, Applicants submit the rejection of claims 1-8 and 20 under 35 U.S.C. § 103 over Yokoi et al. is not warranted, and respectfully request withdrawal of the same.

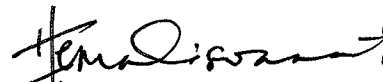
SUMMARY

Applicants submit this Application is now in condition for allowance. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicants' Representative at (612) 336-4728.

Respectfully submitted,

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